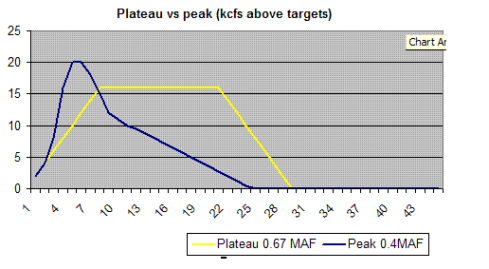
Hydrology/WQ Tech group

- Minneapolis meeting
- Two conference calls since Minneapolis
- Reviewed Corps report on the runs
- Discussions here

Spring rise



Flood control constraints

- Complex
- Corps uses FC constraints to inform it when to cut releases due to downstream flows.
- FC are related to the navigation service level being provided.
- The Corps runs includes a 16 kcfs increase to FC constraints during the second rise, and 3 lesser levels of increase.

Impact of Flood Control Constraints on Minimum System Storage During Droughts

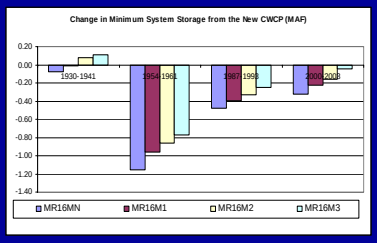


Figure 3

- Comparison is to the current water control plan
- Raising the flood control constraints the full amount of the spring rise uses the most water because it allows the spring rise to be run in many years
- As flood control constraints are reduced, the spring rise gets shuts off more frequently resulting in less water used

Impact of Flood Control Constraints on Spawning Cue

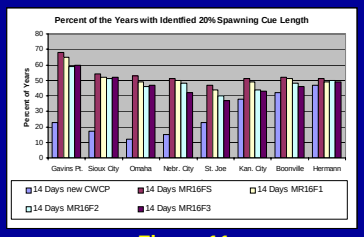


Figure 11

- Number of years meeting spawning cue criteria is generally reduced as flood control constraints become more restrictive
- Difference between alternatives ranges from 2 to 10 percent of years
- All alternatives meet spawning cue criteria more than 35 percent of the years at all locations

Flood constraint conclusion

- We should continue to examine the flood control constraints as it appears possible to reduce risk to downstream users, conserve storage, and achieve a spawning cue through careful selection of the specifics.
- Question: is the Corps definition of spawning cue appropriate?

Spring Rise preclude and/or proportioning the spring rise

- The Corps has modeled
  - a range of precludes (31, 40, 46, and 50 MAF) to discontinue the SR during drought
  - proportioning the spring rise based on system storage during drought.
- The Hydrology group has not yet fully discussed the results. We need runs that directly compare precludes and proportioning the SR.

Impact of the Spring Rise Preclude on Minimum System Storage During Droughts

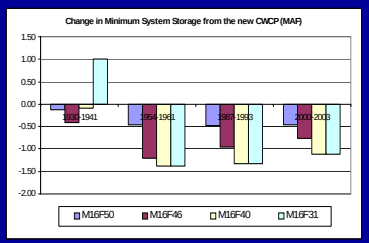
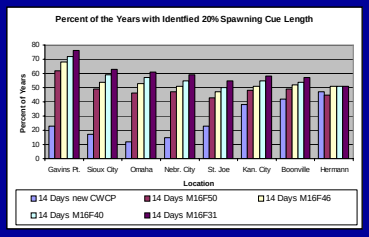


Figure 4

- Comparison is to the current water control plan
- In general, as the spring rise preclude is lowered, system storage during the droughts is lowered due to the ability to run spring rises in more years
- In the 30's drought, the order of non-navigation years changed and an additional non-navigation year was added with the 31 MAF preclude
- In the other 3 droughts, system storage didn't fall below 40 MAF, so the 31 and 40 MAF runs are the same

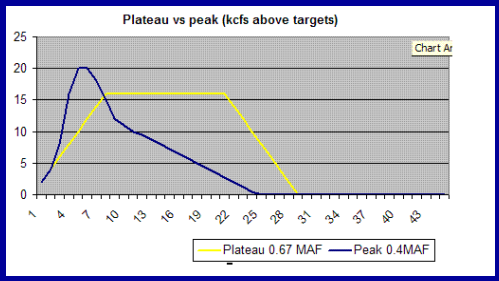
Impact of the Spring Rise Preclude on Spawning Cue



- Number of years meeting spawning cue criteria increases as the spring rise preclude is reduced
- Maximum difference is 11 percent of years
- All alternatives meet spawning cue criteria more than 40 percent of the years at all locations

Figure 12

Spring rise peak vs plateau



- Likely to conserve water
- Reduce time at the peak

Other considerations

- Corps flexibility – Can we give the Corps spring rise constraints (window of dates, peak flow requirements, duration or slopes of rise/fall, etc) and allow them to choose when to do it to take advantage of the year's events and reducing risks downstream?
- Just because we cannot model it, doesn't meet we can't do it.

Questions to the Pallid Sturgeon group

- Is the Corps' measure of the "spawning cue" an acceptable measure? If not, what is?
- Plateau vs. peak. What should be used? What rate of rise and rate of fall?
- Can the date of the spring rise be put off to help the spawns in the reservoirs? How does temperature fit on the SR date? Is it just as significant to the lower reach as the upper reach?
- Prioritization of the spring rise elements would be very helpful.

More questions

- “Water neutrality”. Who pays for the spring rise?
- Impacts to the Mississippi River. How significant?

Today’s work and beyond

- Continuing to look at the current model runs and generating additional runs based on what we are learning.
- Elements could include:
  - Most restrictive flood control constraints consistent with recovery.
  - Identify when to have no rise, one rise, two rises based on system storage OR shall we use proportioning of the rise based on system storage.
  - If going to use a peak (as opposed to a plateau), what parameters?
  - Identify window for the spring rise based on temperature, other